

**SUBSTITUTE SPECIFICATION****Endoscope  
with disposable cartridges for the invagination of endoscopic tube.  
Description of invention.**

Technology Center 3600

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**BACKGROUND OF THE INVENTION.****1. Field of the invention.**

The invention relates to the field of medicine, namely to colonoscopy and enteroscopy, but can also be used for industrial endoscopes.

**2. Description of Background Art.**

Is known the device under U.S.Pat. 4,615,331 from Oct.7, 1986 to Kramann, comprising an endoscopic tube encased in an eversible elastic thin-walled tube which functions as a transporter-invaginator (hereinafter - invaginator) of the endoscopic tube. The invaginator in the device according to this patent is set in long layers parallel to the transported tube. One of the drawbacks of this device is the inconsistent unreeling of invaginator's layers, which is caused by their "sticking together" under air pressure and inevitable getting of air into spaces between them. Untimely eversion of any layer excludes from participation in intubation process the other layers, located above the everted one.

Is known also the intestinal endoscope under the inventor's certificate SU 1522466 from April 20, 1999 to Matasov with an invaginator set in pleats and placed at the right angle with an endoscopic tube transported by the invaginator. This endoscope is used as a basis to the present invention and has been taken as a closest prior art. The endoscope according to the closest prior art comprises: - a light source; - a source of excessive pressure; - an endoscopic tube with an eyepiece, a control block having a communication branch-tube and a stop for a spring; - an invaginator of endoscopic tube consisting of an uneverted part encased in an everted part, at that the uneverted part of invaginator tightly adjoins the endoscopic tube and is placed in pleats perpendicularly to it. From the side of the uneverted end the invaginator is supported by a spring and the area of transition of the uneverted part of the invaginator into the everted part is limited by a tip (in the meaning of the „tip cover“) of the endoscopic tube. Furthermore, the endoscope according to the closest prior art comprises: - an external seal of the endoscopic tube to which the end of the everted part of the invaginator is fixed; - rings on the uneverted end of the invaginator; - an air-duct with a cock for feeding working pressure into the cavity of the everted part of the invaginator; - an anal dilator. Endoscopic tube of the closest prior art comprises light and image transmission elements, biopsy channels, channels for gas or liquid supply, and, in addition, comprises two pairs of close-coiled springs with traction lines which are pair-wise connected to the distal ring of a mechanism for bending a distal end of the endoscopic tube and rollers located in the control block and designed for manual extraction of traction lines.

The first drawback of the endoscope according to the closest prior art is unreliable operation of its invaginator resulting in difficulties with introduction of the endoscopic tube into the external seal (see lines 42-53 of the SU 1522466). The invaginator is to be everted under the tip, but during invagination the distal part of the endoscopic tube becomes bared. It can happen because of absence of a gap between the endoscopic tube and the uneverted part of the invaginator and because of a flabby structure of the latter, which cause the invaginator to adhere to the endoscopic tube under the air pressure. Tube pleats formed while bending the